IN THE SPECIFICATION

Please amend the paragraphs of the specification as follows:

Please replace the paragraph starting at page 3, line 9 with the following amended paragraph:

FIG. 8 is an exemplary timing diagram of a reverse link showing ACK/[[NAC]] NAK channel timing with respect to slot timing used in a communication system.

Please replace the paragraph starting at page 3, line 27 with the following amended paragraph:

FIG. 1 illustrates an exemplary communication system 100 capable of implementing embodiments of the invention. A first terminal 104 transmits signals to a second terminal 106 over a forward link [[108a]] 108A, and receives signals from the second terminal 106 over a reverse link [[108b]] 108B. Terminals 104 and 106 may be operating as a transmitter unit or a receiver unit, or both concurrently, depending on whether data is being transmitted from, or received at, the respective terminals 104 and 106. Terminals 106 and 104 may be respectively a mobile station (MS) and a base station (BS) or any other communication devices. Forward and reverse links [[108a]] 108A and [[108b]] 108B may be electromagnetic spectra or ~~wirline~~ wireline. A BS controller 102 may be coupled to BS 104 for controlling communication system 100.

Please replace the paragraph starting at page 4, line 6 with the following amended paragraph:

For simplicity, communication system 100 is shown to include one BS 104 and one MS 106; however, other variations and configurations of the communication system 100 are possible. For example, in a multi-user, multiple access communication system, a single BS may be used to concurrently transmit data to a number of mobile stations. In addition, in a manner similar to ~~soft-handoff~~ soft handoff, disclosed in U.S. Patent Serial No. 5,101,501, entitled "SOFT

HANDOFF IN A CDMA CELLULAR TELEPHONE SYSTEM," and U.S. Patent number 5,267,261, ~~titled~~ entitled "~~Mobile Station Assisted Soft Handoff in a CDMA Cellular Communications System~~ MOBILE STATION ASSISTED SOFT HANDOFF IN A CDMA CELLULAR COMMUNICATIONS SYSTEM," assigned to the assignee of the present invention and incorporated by reference herein, a MS may concurrently receive transmissions from a number of base stations. The communication system of the embodiments described herein may include any number of base stations and mobile stations. Consequently, each of the multiple base stations is connected to BS controller (BSC) 102 through a backhaul similar to backhaul 110. The backhaul 110 can be implemented in a number of connection types including, e.g., a microwave or ~~wire line~~ wireline E1 or T1, or optical fiber. A connection 112 connects the wireless communication system 100 to a packet data serving node (PDSN), which is not shown.

Please replace the paragraph starting at page 4, line 24 with the following amended paragraph:

In general, a communication link comprises a set of channels carrying logically distinct types of information. These channels may be transmitted according to a scheme of ~~time division multiplexing~~ Time Division Multiplexing (TDM), ~~code division multiplexing~~ Code Division Multiplexing (CDM), ~~frequency division multiplexing~~ Frequency Division Multiplexing (FDM), or a combination thereof. In a TDM scheme, the channels are distinguished in time domain, where the channels are transmitted one at a time. In a CDM scheme, the channels may be distinguished by a pseudorandom orthogonal sequence. A code division communication system is disclosed in U.S. Patent No. 5,103,459, entitled "SYSTEM AND METHOD FOR GENERATING SIGNAL WAVEFORMS IN A CDMA CELLULAR TELEPHONE ~~SYSTEM~~ SYSTEM," assigned to the assignee of the present invention and incorporated by reference herein.

Please replace the paragraph starting at page 5, line 3 with the following amended paragraph:

Forward link [[108a]] 108A may include a set of channels, e.g., a pilot channel, a medium access channel, a traffic channel, and a control channel. The control channel is a channel

carrying signals for reception by all mobile stations in the area covered by communication system 100. To operate in the system, each MS may need to monitor at least one control channel. The traffic channel carries data. The control channel may carry information necessary for demodulation of data being carried on the traffic channel. A forward link signal structure in accordance with an exemplary embodiment is shown in FIG. 2. The reverse link [[108b]] 108B includes a set of channels, e.g., a traffic channel and an access channel. The reverse traffic channel is dedicated to transmission from a single MS to the BSs comprising a network. The reverse access channel is used by a MS to communicate with the BSs in the network prior to or while establishing a traffic channel.

Please replace the paragraph starting at page 5, line 16 with the following amended paragraph:

In an exemplary embodiment, each MS monitors at least one signal quality metric of signals received from BSs. An MS (for example MS 106) receiving forward link signals from multiple BSs identifies the BS associated with the highest quality forward link signal (for example BS 104). MS 106 then generates a prediction of a data rate at which the ~~packet error rate~~ Packet Error Rate (PER) of data packets received from the selected BS 104 will not exceed a target PER. A target PER of approximately 2% may be used. MS 106 then computes a rate at which a "tail probability" is greater than or equal to the target PER. The tail probability is the probability that the actual signal quality during the packet transmission period is less than the signal quality required for successful decoding of a packet correctly at a given rate. MS 106 then sends a message on the reverse link [[108b]] 108B specifically to the selected BS 104, requesting the data rate at which the specific selected BS may transmit forward link data to the MS 104. The message may be sent on a ~~data rate control~~ Data Rate Control channel (DRC). The use of DRC is disclosed in a co-pending application serial number 08/963,386 entitled: "A METHOD AND AN APPARATUS FOR HIGH RATE DATA PACKET TRANSMISSION," now U.S. Patent No. 6,574,211, issued June 3, 2003 to Padovani et al. assigned to the assignee of the present invention, and incorporated by reference herein. A dedicated reverse link ~~medium access channel~~ Medium Access Channel (R-MACCH) may be utilized for carrying the DRC

information, a ~~reverse rate indicator~~ Reverse Rate Indicator (RRI), and ~~selective acknowledgement~~ Selective Acknowledgement (SA) information.

Please replace the paragraph starting at page 6, line 4 with the following amended paragraph:

BS 104 may monitor the reverse channel from one or more MSs and may transmit data on the forward link [[108a]] 108A to no more than one destination MS during each forward link transmit time slot. In one embodiment, BS 104 selects a destination MS (for example MS 106) based on a scheduling procedure designed to balance the grade of service (GoS) requirements of each MS with the desire to maximize throughput of the system 100. BS 104 transmits data to MS 106 only at the rate indicated by the most recent DRC message received from the destination MS 106. This restriction makes it unnecessary for MS 106 to perform rate detection on the forward link signal. MS 106 determines whether it is the intended destination MS during a given time slot.

Please replace the paragraph starting at page 6, line 14 with the following amended paragraph:

In one embodiment, the data packet for transmission includes a preamble within the first time slot of each new forward link packet for identifying the intended destination MS. Each MS receiving the preamble decodes the information and, based on the decoded preamble, establishes whether it is the intended destination of the data packet. The intended destination MS begins decoding the data in the associated time slot. The destination MS determines the data rate of the data in the forward link based on the DRC request message. The number of forward link time slots used to transmit a packet varies based on the data rate at which the packet is sent. Packets sent at a lower rate are sent using a greater number of time slots. The destination MS decodes the received data packet and evaluates a quality metric associated with the received data packet. The quality metric of a packet may be defined by a formula in accordance with a content of the packet, e.g., a parity bit, a ~~cyclic redundancy check~~ Cyclic Redundancy Check (CRC), and etc. The evaluated quality metric and the quality metric contained in the received packet are compared, and based on the comparison an appropriate SA is generated. The SA may be ACK

based, which includes sending an ACK message from the MS to the BS if a data packet is correctly decoded, and no message is sent when the data packet is incorrectly decoded. If the SA is NAK based, which includes sending a NAK message from the MS to the BS only if a data packet is incorrectly decoded.

Please replace the paragraph starting at page 7, line 10 with the following amended paragraph:

In an exemplary embodiment, an SA code channel orthogonal to the reverse link [[108b]] <u>108B</u> can be advantageously utilized to transmit ACK or NAK messages. Because a BS is transmitting a data packet intended for only one MS, at most this MS sends the SA, thus achieving a low interference on the reverse link [[108b]] <u>108B</u>. A dedicated reverse link medium access channel (R-MACCH) may be utilized for transmission of the DRC, RRI, and ACK/NAK information. The BS after detecting an SA channel determines whether a retransmission of the packet is necessary. If the SA indicates that a retransmission is necessary, the packet is scheduled for retransmission. Otherwise, the packet is discarded.

Please replace the paragraph starting at page 7, line 19 with the following amended paragraph:

FIG. 2 shows the forward link signal structure transmitted by each BS in an exemplary high data rate system in accordance with a particular embodiment. Forward link signals are divided into fixed-duration time slots. Each time slot is 1.67 milliseconds long. Each slot 202 is divided into two half-slots 204A and 204B, with a pilot burst 208A or 208B transmitted within each half-slot 204A or 204B. In an exemplary embodiment, each slot is 2048 chips long, corresponding to a 1.67 millisecond slot duration. In an exemplary embodiment, each pilot burst 208A or 208B is 96 chips long, and is centered at the mid-point of its associated half-slot 204A or 204B. A reverse link power control (RPC) signal 206A or 206B is transmitted on both sides of the pilot burst [[208b]] <u>208B</u> in every second half-slot 204B The RPC signal may be transmitted for 64 chips immediately before and 64 chips immediately after the second pilot burst 208B to regulate the power of the reverse link signals. Forward link traffic channel data is sent in the remaining portions 210A and 210B of the first half-slot 204A and the remaining portions

212A and 212B of the second half-slot 204B. Preamble 214 is 64 chips long and is transmitted once for each data packet. The preamble 214 is MS specific because the traffic channel stream is intended for a particular MS. Since each data packet is divided into multiple data units, and each unit is transmitted during a slot time, the first time slot contains the preamble 214 identifying the destination MS for receiving the data stream in the first and subsequent time slots.

Please replace the paragraph starting at page 8, line 7 with the following amended paragraph:

FIG. 3 is an exemplary flowchart of a method for a BS to use a Quick Automatic Request (QARQ) scheme to transmit or retransmit a packet to a MS in accordance with an embodiment. At step 300, the BS receives a payload unit intended for transmission to a MS. At step 302, the BS determines whether the payload unit is a payload unit to be transmitted or a payload unit to be retransmitted. A retransmission request may be initiated only by a radio link protocol (RLP) at this step. If the payload unit is to be transmitted, the method continues to step 306, in which the payload unit is provided to a first-time queue. If the payload unit is to be retransmitted, the method continues in step 304, in which the payload unit is provided to a retransmission queue. At step 308, the BS assembles payload units intended for a particular MS to a packet, the structure of which is determined in accordance with a transmission data rate. The data rate of the packet is based on the DRC feedback signal received over the reverse link from the destination MS. The data packet may be transmitted over multiple time slots. The first time slot is transmitted with the preamble. The preamble identifies the intended destination MS. The preamble could alternatively be transmitted in every forward link time slot. At step 310, the BS transmits the data packet in accordance with a scheduler order. After the data packet has been transmitted, the BS tests at step 312 if [[a]] <u>an</u> SA corresponding to the transmitted data packet was received.

Please replace the paragraph starting at page 8, line 27 with the following amended paragraph:

If an ACK is received (or a NAK is not received) in the expected time slot, the method continues at step 314. At step 314, the packet is removed from the first- time and retransmission

queues, and the packet is discarded. If a NAK is received (or an ACK is not received) in the expected time slot, the method continues at step 316. At step 316, parameters controlling retransmission are tested. The parameters assure that a particular packet will not be retransmitted repeatedly, which would increase buffer requirements and decrease throughput of a communication system. The parameters may include the maximum number of times a packet can be retransmitted and the maximum time for which a packet can remain in the first-time queue after the packet has been transmitted. If the parameters were exceeded, the packet is removed from the first-time and retransmission queues, and the packet is discarded at [[a]] step 318. In this scenario, the QARQ retransmission processing ends and the packet may be retransmitted upon request. If the parameters were not exceeded, the packet is rescheduled for retransmission at [[a]] step 320.

Please replace the paragraph starting at page 9, line 10 with the following amended paragraph:

FIG. 4 is an exemplary flowchart of a method for an MS to use QARQ to generate a response to a BS in accordance with one embodiment. At step 400, the MS receives a data unit of a data packet from the BS. At step 402, the preamble of the packet is extracted. The preamble is compared with a reference preamble at step 404. The packet is discarded at [[a]] step 406 if the preamble indicates that the packet is intended for another MS, and the flow returns to step 400 to wait for another packet[[or]] <u>or,</u> in the alternative, the packet may be retained for soft combining with retransmissions of the same packet. If the preamble indicates that the packet is intended for the MS, the MS decodes the packet at step 408 and evaluates a quality metric of the received packet.

Please replace the paragraph starting at page 9, line 31 with the following amended paragraph:

If the packet was correctly decoded at step 410, an appropriate SA is sent at step 416. The payload unit(s) contained in the packet are then stored in a buffer at step 418. At step 420, the RLP sequence numbers of the payload units [[is]] <u>are</u> tested against expected values of the RLP sequence numbers.

Please replace the paragraph starting at page 10, line 17 with the following amended paragraph:

At step 426, the RLP layer checks the sequence numbers of the delivered payload units. If the sequence numbers ~~indicates~~ indicate contiguity, the RLP layer delivers data from the buffer to a data sink at step 428. Otherwise, the RLP layer generates an RLP message requesting retransmission of the missing units at step 430. In one embodiment, the RLP message requests retransmission of all of the missing units in the buffer. In another embodiment, the RLP message requests retransmission of only the latest detected missing payload units. At step 432, the message is transmitted over the reverse link to the serving BS. Although an RLP processor is shown, other protocols allowing retransmission based on sequence number methods can be utilized.

Please replace the paragraph starting at page 10, line 27 with the following amended paragraph:

FIG. 5 shows an exemplary detailed block diagram of the communication system 100 of FIG. 1 in accordance with an embodiment. Data to be delivered to MS 106 arrive at BSC 102 through connection 112 from the PDSN (not shown). The data is formatted into payload units under the control of [[a]] an RLP processor 504. RLP processor 504 also supplies a distributor 502 with information as to which packets have been requested for retransmission. The retransmission request is delivered to the RLP processor 504 through the RLP message. Distributor 502 distributes payload units through a backhaul to BS 104, which serves the MS (MS 106 in this example) for which the data is intended.

Please replace the paragraph starting at page 11, line 12 with the following amended paragraph:

Assembled packets are provided to a scheduler 512. The scheduler 512 cooperates with a QARQ controller 518 on assigning priority between the first time packets and the packets intended for retransmission to MS 106. The packet transmitted to the MS 106 remains in the

queues 508 and 510, while the BS 104 waits for [[a]] an SA from MS 106. The data units are transmitted over forward link [[108a]] 108A to MS 106.

Please replace the paragraph starting at page 11, line 18 with the following amended paragraph:

The packets arriving at MS 106 over the forward link [[108a]] 108A are provided to a preamble detector 520, which detects and decodes a preamble of the packets. The preamble is provided to a processor 521, which compares the decoded preamble to a reference preamble. The packet is discarded if the preamble indicates that the packet is intended for another MS. Otherwise, the packet is provided to a decoder 522, which decodes the packet. The decoded packet is provided to the processor 521, which also evaluates a quality metric of the packet. The evaluated quality metric and the quality metric contained in the received packet are compared, and based on the comparison an SA generator 524 generates an appropriate SA. Preamble detector 520, decoder 522, and processor 521 are shown as separate elements. However, one skilled in the art will appreciate that the physical distinction is made for explanatory purposes. Preamble detector 520, decoder 522, and processor 521 may be incorporated into a single processor accomplishing all the processing functions. Moreover, transmission and reception of forward and reverse link signals involve other functions such as data channel generation and RF/IF units that are not shown for simplicity. One skilled in the art appreciates that such functions in various configurations are possible, and often necessary, for proper transmission and reception of forward and reverse link signals.

Please replace the paragraph starting at page 12, line 15 with the following amended paragraph:

If a packet was correctly decoded, the payload unit(s) contained in the packet are stored in a buffer 528. The RLP sequence numbers of the payload unit(s) contained in the packet is checked by the decoder 522 against an expected value of the RLP sequence numbers. If the RLP sequence numbers indicates contiguity, all the payload units with contiguous sequence numbers contained in the buffer 528 are provided to [[a]] an RLP processor 526. Otherwise, the timer 530, corresponding to the last NAK sent, is checked. If the time has not expired, the payload units are stored in the buffer 528, and the MS 106 waits for retransmission of the missing

payload units or expiration of the timer 530 for the last NAK sent. If the timer 530 for a particular NAK for a particular set of missing payload units has expired, all payload units in the buffer 528 with sequence numbers higher than the missing units associated with the particular NAK and lower than the missing units associated with the next NAK, if any, are provided to RLP processor 526.

Please replace the paragraph starting at page 13, line 6 with the following amended paragraph:

The data containing the SA and arriving at the BS 104 over the reverse link is provided to [[a]] an SA detector 514 and an RLP message detector 516. If the received data contains an ACK, which is detected in SA detector 514, the QARQ controller 518 removes the packet associated with the ACK from the queues 508 and 510. If a NAK is received, the QARQ controller 518 checks whether parameters controlling retransmission were exceeded. In an exemplary embodiment, the parameters include the maximum number of times a packet can be retransmitted and the maximum time for which a packet can remain in the first-time queue 508 after the packet has been transmitted. If the parameters were exceeded, the QARQ controller 518 removes the packet from the queues 508 and 510. Otherwise, the QARQ controller 518 instructs the scheduler 512 that the packet be rescheduled for transmission with higher priority. The packet is moved from the first-time queue 508 to the retransmission queue 510 if the QARQ controller 518 determines that the non-acknowledged packet resides in the first time queue 508.

Please replace the paragraph starting at page 14, line 9 with the following amended paragraph:

The relation between the received packet processing and the SA is determinable by fixing the number of slots between receiving a packet and sending [[a]] <u>an</u> SA back, i.e., slots n-2, n-1. Consequently, BS 104 can associate each packet with each SA. One skilled in the art will understand that FIG. 6 is provided to illustrate the concept. Consequently, the number of slots allocated for a particular event may change, e.g., decoding and evaluating of a quality metric may occur in more or less than two slots. Furthermore, certain events are inherently variable, e.g., length of a packet, delay between the SA reception and the packet retransmission. In another

embodiment, the relation between the received packet processing and the SA is determinable by including information in the SA as to which packet is to be retransmitted.

Please replace the paragraph starting at page 15, line 1 with the following amended paragraph:

Referring to Fig. 8, a reverse link channel slot structure is shown in accordance with an embodiment. Each frame may be divided into 16 slots. At least one of the slots may be used for transmission of the DRC messages and pilot data. Although the muxing operation performed by MUX 630 is shown to include the DRC message on ~~one half~~ one-half of a slot and the pilot message on the other half of the same slot, the DRC message and the pilot information may be placed in any part of the time slot.

Please replace the paragraph starting at page 15, line 22 with the following amended paragraph:

[[A]] An MS in an exemplary embodiment may have three operating states. The first state may be an access state for initializing a contact with a BS. The next state may be a connected state when the MS is in a communication link with the BS. Another state may be an idle state when the MS processing activities are reduced for conserving battery power but nevertheless the MS is in a quasi contact with the BS. To get into a connected state, the MS may have to go through the access state. From the access state, the MS may go directly to the idle state and then to the connected state. Several MSs in a connected state may be in contact with the same BS for receiving data packets.

Please replace the paragraph starting at page 16, line 27 with the following amended paragraph:

Input data of the traffic channel is encoded in an encoder 612 and block interleaved in a block 614 before Walsh covered in a multiplier 616. A gain element 618 adjusts the gain of the traffic channel. The result passes through multipliers 650B and 650D for channel spreading. The DRC message is encoded in a DRC encoder block 626. A Walsh generator 624 generates the Walsh functions for Walsh covering the encoded DRC message in a multiplier 628. Walsh

covered DRC message and pilot data are multiplexed in a MUX block 630. The results are summed in summer 694 with the gated NAK/ACK channel. The results of the summer 694 are channel spread in multipliers 650A and 650C. Code generators 642 and 644 generate long and short codes. The codes are multiplied in multipliers 646A and 646B to generate PN-I and PN-Q. A block 640 may provide the timing and control functions. The PN-I and PN-Q are used for channel spreading performed by multipliers 650A-650D. The results of multipliers 650A-650D are passed through filters 652A-652D. The outputs of filters 652A and 652B are summed in a summer 654A to generate I-channel, and outputs of filters 652C and 652D are summed in a summer 654B to generate the Q-channel.